WHAT IS CLAIMED IS:

1. A method for producing a semiconductor device including a plurality of elements having different functions formed in a first region and a second region on a substrate, comprising the steps of:

forming a device isolation film on the substrate by using a first mask pattern covering the first region and the second region;

forming a first insulating film in the second region while covering the first region with a second mask pattern ; and

removing the second mask pattern from the first region and forming a second insulating film thicker than the first insulating film in the first region.

2. A method for producing a semiconductor device including a plurality of elements having different functions formed in a first region and a second region on a substrate, comprising the steps of:

forming a device isolation film on the substrate by using a first mask pattern covering the first region and the second region;

forming a first insulating film in the second region while covering the first region with a second mask pattern ;

removing the second mask pattern from the

first region, and forming a second insulating film in a part of the first region while covering the first region except for the part of the first region with a third mask pattern ; and

removing the third mask pattern from the first region and forming a third insulating film in the part of the first region.

3. The method as claimed in claim 2, wherein in the step of removing the third mask pattern , the third insulating film is formed while the second insulating film is oxidized again.

4. The method as claimed in claim 2, wherein in the step of forming the device isolation film, the device isolation film is formed by STI (Shallow Trench Isolation) method.

5. The method as claimed in claim 2, wherein in the step of forming the device isolation film, the device isolation film is formed by LOCOS (Local Oxidation of Silicon) method.

6. The method as claimed in claim 2, wherein in the step of forming the device isolation

film, the first mask pattern includes a nitride film.

7. The method as claimed in claim 6, wherein in the step of forming the device isolation film, the nitride film is removed by dry etching.

8. A semiconductor device production method, comprising the steps of:

forming a device isolation film on a substrate by using a first mask pattern covering a first region and a second region on the substrate;

forming a first insulating film in the first region while covering the second region with a second mask pattern ; and

removing the second mask pattern and forming a second insulating film in the second region.

9. The semiconductor device production method as claimed in claim 8, wherein in the step of removing the second mask pattern , the second insulating film is formed while the first insulating film is oxidized again.

10. A semiconductor device production method, comprising the steps of:

forming a device isolation film on a substrate by using a first mask pattern covering a first region through an n-th region (n is an integer equal to or greater than two);

forming an insulating film in the n-th region while covering the first region through the (n-1)-th region with a second mask pattern ; and

removing the second mask pattern , and forming an insulating film in the (n-1)-th region while covering the regions other than the (n-1)-th region with a third mask pattern .

11. The semiconductor device production method as claimed in claim 10, wherein in the step of removing the second mask pattern , the insulating film in the (n-1)-th region is formed while the insulating film formed in the n-th region is being oxidized again.

12. The semiconductor device production method as claimed in claim 10, wherein in the step of forming the device isolation film, the device isolation film is formed by STI (Shallow Trench Isolation) method.

13. The semiconductor device production

method as claimed in claim 10, wherein in the step of forming the device isolation film, the device isolation film is formed by LOCOS (Local Oxidation of Silicon) method.

14. The semiconductor device production method as claimed in claim 10, wherein in the step of forming the device isolation film, a patterning step for forming the first mask pattern on the substrate and an etching step for forming a trench groove for the device isolation film are performed simultaneously.

15. The semiconductor device production method as claimed in claim 10, wherein in the step of forming the device isolation film, the first mask pattern includes a nitride film.

16. The semiconductor device production method as claimed in claim 15, wherein in the step of forming the device isolation film, the nitride film is removed by dry etching.